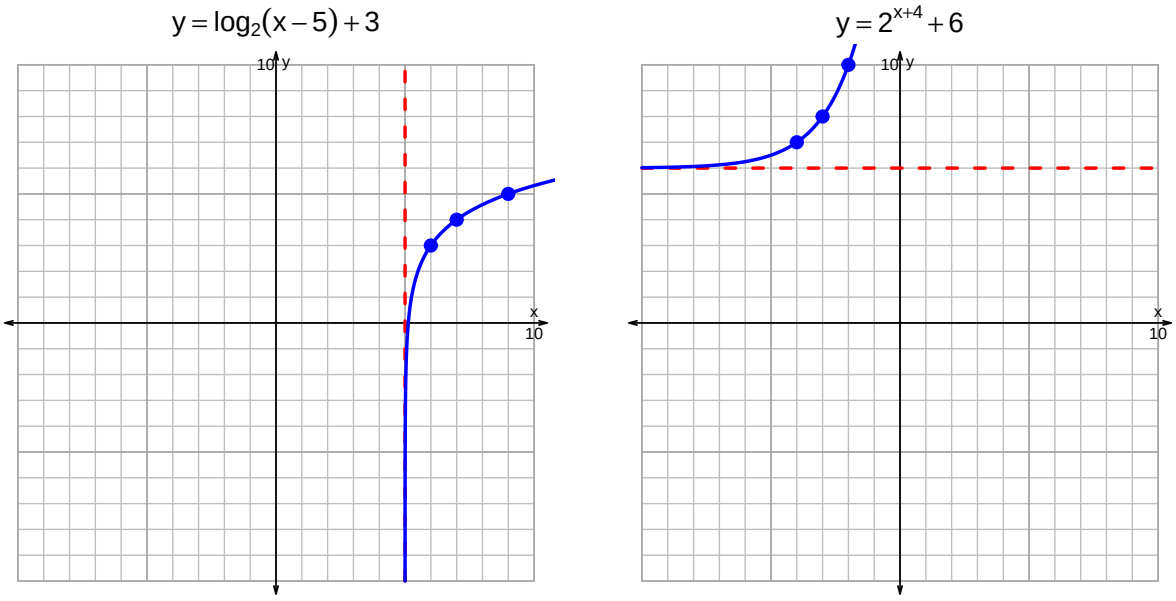
Name: Date:

S18QUIZ: EXP LOG (SLTN v200)

1. Graph $y = \log_2(x-5)+3$ and $y = 2^{x+4}+6$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$-17 = \left(\frac{-7}{5}\right) \cdot 2^{4t/3}$$

Divide both sides by $\frac{-7}{5}$.

$$\frac{17 \cdot 5}{7} = 2^{4t/3}$$

Take log, base 2, of both sides.

$$\log_2\left(\frac{17 \cdot 5}{7}\right) = \frac{4t}{3}$$

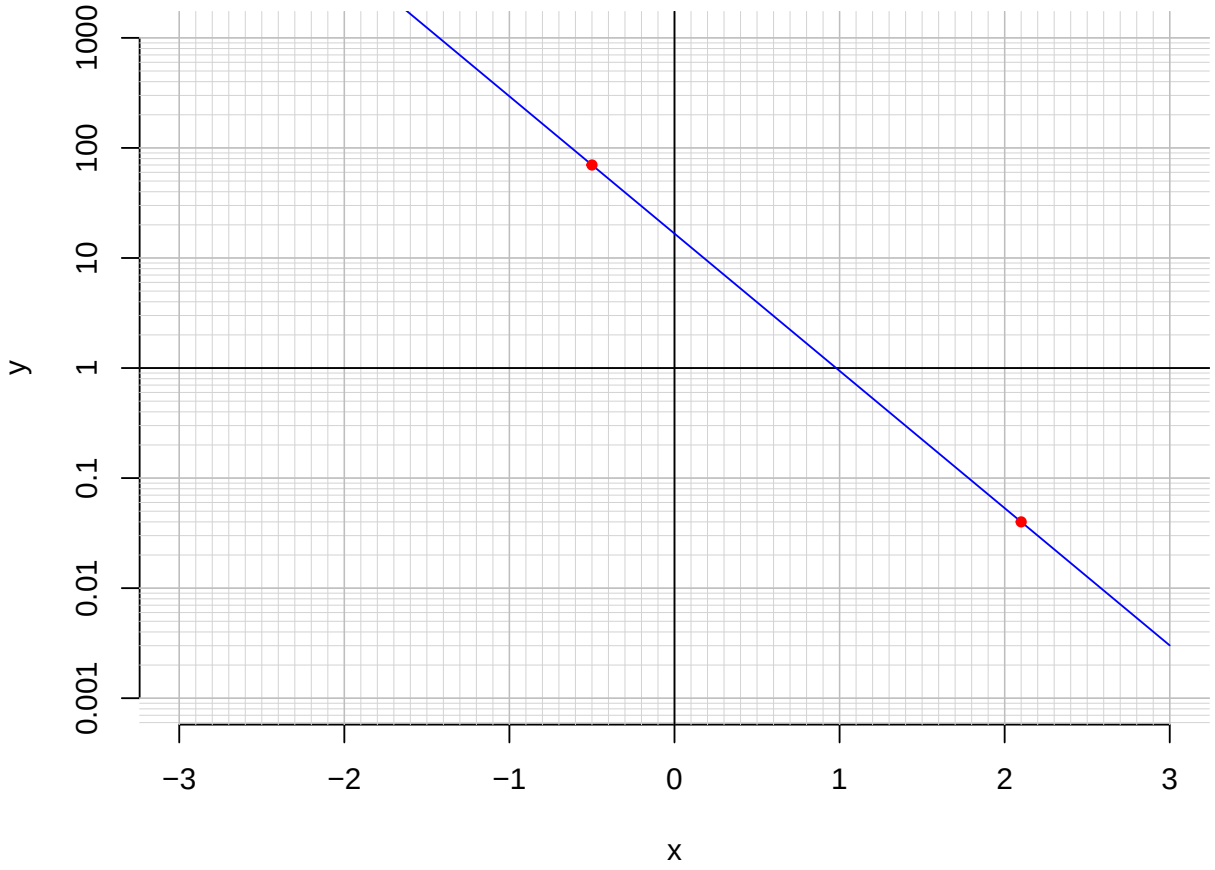
Divide both sides by $\frac{4}{3}$.

$$\frac{3}{4} \cdot \log_2\left(\frac{17 \cdot 5}{7}\right) = t$$

Switch sides.

$$t = \frac{3}{4} \cdot \log_2\left(\frac{17 \cdot 5}{7}\right)$$

3. An exponential function $f(x) = 16.7 \cdot e^{-2.87x}$ is graphed below on a semi-log plot.



a. Using the plot above, evaluate $f(-0.5)$.

$$f(-0.5) = 70$$

b. Express $f^{-1}(x)$, the inverse of f.

$$f^{-1}(x) = \frac{-1}{2.87} \cdot \ln\left(\frac{x}{16.7}\right)$$

c. Using the plot above, evaluate $f^{-1}(0.04)$.

$$f^{-1}(0.04) = 2.1$$